

## **Method of Index Trimming a Waveguide and Apparatus formed of the Same**

### **ABSTRACT**

5           A method of using a beam of ultra-short laser pulses, having pulse durations  
below 10 picoseconds, to adjust an optical characteristic within an optical medium is  
provided. The beams would have an intensity above a threshold for altering the  
index of refraction of a portion of the optical medium. The beams could be  
selectively applied to the optical medium and any structures formed or existing  
10       therein. Thus, the beam could be moved within a waveguide in the optical medium  
to alter the index of refraction of the waveguide forming any number of different  
longitudinal index of refraction profiles. The beam could also be moved within the  
optical medium near the waveguide to alter an effective index of refraction of a  
signal traveling within the waveguide. The techniques described can be used to  
15       improve, alter or correct performance of waveguide-based optical devices, such as  
arrayed waveguide gratings and cascaded planar waveguide interferometers.

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